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**SSERC Risk Assessment** (revised version March 2018)

(based on HSE’s INDG 163 ‘Risk assessment - A brief guide to controlling risks in the workplace’)

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| Activity assessed | Derivative Formation (AH PPA) |
| *Date of assessment* | 26the Feb 2021 |
| *Date of review (****Step 5****)* |  |
| *School* |  |
| *Department* |  |

| Step 1 | Step 2 | Step 3 | Step 4 | | |
| --- | --- | --- | --- | --- | --- |
| *List Significant hazards here:* | *Who might be harmed and how?* | *What are you already doing?*  *What further action is needed?* | *Actions* | | |
| *by whom?* | *Due date* | *Done* |
| 2,4-dinitrophenylhydrazine is harmful if swallowed and flammable and may be an eye irritant – possible explosive if it gets very dry. | Technicians while preparing Brady’s reagent | Keep solid moistened on storage. Wear eye protection. |  |  |  |
| Phosphoric acid is corrosive | Technicians while preparing Brady’s reagent by splashes | Wear goggles (BS EN166 3) or a face shield and gloves. |  |  |  |
| Ethanol (IDA) is highly flammable, harmful if swallowed and can cause damage to eyes on prolonged or repeated exposure (due to methanol content) | Technicians while preparing Brady’s reagent by ignition.  Pupils or teachers while using it by ignition. | Keep away from sources of ignition. Work in a well ventilated laboratory. |  |  |  |
| Brady’s reagent – once prepared – is flammable and corrosive | Pupils, teachers or technicians by splashes | Wear goggles (BS EN166 3) and work in a well-ventilated laboratory. |  |  |  |
| Derivative – 2,4-dinitrophenylhydrazones are of unknown health hazard – likely the same as the hydrazine. Harmful if swallowed | Pupils teachers when determining melting point. | Work with care, consider wearing eye protection. |  |  |  |
| Ketones – various ketones can be used in this activity. The risk assessment should include details of the specific one(s) used. |  |  |  |  |  |
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| **Description of activity:**  An unknown (to the student) ketone is added to some Brady’s reagent. The precipitate is filtered, recrystallised from ethanol, dried and the melting point determined. |

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| **Additional comments:**  Older recipes use concentrated sulphuric acid and methanol. A safer version uses phosphoric acid and ethanol – use this instead  Wear rubber or plastic gloves and goggles (BS EN 166 3). Stir 2 g of 2,4-dinitrophenylhydrazine (DNPH) with 50 ml of 85% phosphoric(V) acid (CORROSIVE). Add 50 ml of ethanol (HIGHLY FLAMMABLE). The mixture is CORROSIVE and HIGHLY FLAMMABLE and should be labelled accordingly. |